

APPLE GIVES \$500 KIT TO SCHOOLS STARTING COMPUTER LITERACY PROGRAM

Apple now makes an amazing offer: APPLE SEED — a free teaching kit to schools buying their first Apple computer. Worth approximately \$500, Apple Seed is a self-training tool for teachers and students. Now you can buy your Apple and immediately use it to teach yourself and your students the how and why of computing.

Apple Computer Inc. will give this free kit of teaching and reference materials to individual schools that qualify as "start-up" schools and to districts expanding on-going computer education programs.

Apple Seed includes materials prepared by Apple, Science Research Associates, Inc. (a division of IBM), educational publisher Sterling Swift, and Dr. James S. Poirot, chairman of the computer science department at North Texas State University and an advisor to the Apple Education Foundation.

Apple education specialist Glenn Polin says, "We realize the importance of computer knowledge for today's student—particularly in the light of tomorrow's job market. Apple Seed is designed to help schools get computer literacy programs underway to meet this pressing need."

APPLE SEED PROGRAM

Available in two versions: junior high or senior high, Apple Seed contains six teaching tools.

- Computer Literacy Show and Tell Kit
- Computer Discovery
- Computers and Education
- Microcomputer Systems and Apple BASIC
- Applesoft Tutorial
- Educational Software Directory

COMPUTER LITERACY SHOW AND TELL KIT: Developed by educational publisher Sterling Swift the kit contains examples of real computer hardware e.g. diodes, floppy disks and integrated circuits. With each piece of hardware is an explanation of its importance to computing. Bound in a durable vinyl



notebook, Computer Literacy Show and Tell Kit entertains and informs students and teachers of today's computer developments.

COMPUTER DISCOVERY by Science Research Associates, provides educators comprehensive computer literacy courseware in the form of a 128-page student workbook, instructor's guide, and two Apple diskettes. It covers computer history, hardware and software, analysis and programming, and the social and economic impacts of computers.

Available in junior high or senior high versions, the junior high level is appropriate for gifted or advanced elementary students.

COMPUTERS AND EDUCATION by Dr. James Poirot (89-page softbound) discusses computer history, applications (both in the classroom and in the office), educational games and computer trends. Computers and Education also covers selection of equipment, setting up a computer lab—even creating classroom bulletin board displays.

MICROCOMPUTER SYSTEMS and APPLE BASIC also by Dr. Poirot, (150-page softbound), teaches the computer novice to formulate problems for a computer and then to program with Apple BASIC.

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APPLESOFT TUTORIAL by Apple Computer addresses users new to computers and Apple. The Tutorial teaches Apple's capabilities and programming fundamentals. Each school participating in Apple Seed will receive a classroom set (25 copies) of Applesoft Tutorial.

THE EDUCATIONAL SOFTWARE DIRECTORY: Apple II Edition from Sterling Swift Publishing Co. eliminates flipping through catalogues and clipping ads in computer magazines. It is the **ONLY** comprehensive directory of the educational software available for the Apple Computer System. It includes a short description and price of each piece of software, ordering information, and an index categorizing available lessons by grade level. The Directory covers over 700 separate listings including instructional packages from commercial software publishers as well as non-profit and educational institutions.

As Apple Education Specialist Polin says, "Purchasing high quality computer hardware is only the beginning of establishing computer programs in schools. The next crucial step is to obtain reliable, top quality software. This guide enables educators to choose software that best suits their needs."

HOW TO OBTAIN APPLE SEED

To receive the kit, a school must be a first-time user of an Apple computer. The Apple (minimum configuration a 32K Apple II Plus and one disk drive) must be sold and installed by an authorized dealer between February 15 and July 31, 1981.

A school district that has already installed Apple computers in all its schools will receive one Apple Seed package if it purchases at least one 32K Apple II Plus with disk drive during the same six-month period.

To receive Apple Seed, you complete two forms and on your school letterhead indicate how you qualify for the program: either as a school without Apples or a district placing additional Apples. Your dealer sends all paperwork to Apple. In 6-8 weeks Apple will send the Apple Seed Kit directly to your school.

So that's the deal. If you're beginning a computer literacy course take advantage of it and plant Apple Seeds. It's the start-up program that teaches you and your students how to operate, program and enjoy the Apple.

APPLES EXCEED EXPECTATIONS AT ROCHESTER INSTITUTE OF TECHNOLOGY

At Rochester Institute of Technology Apples win honors.

Famed for its academic excellence, Rochester Institute of Technology employs dozens of Apple computers for both classroom teaching and administrative tracking.

Apples are used at six of the ten colleges: Engineering, Fine and Applied Arts, General Studies, Graphic Arts and Photography, Institute College, and the federally funded National Technical Institute for the Deaf. Professor Dominic Fantauzzo says, "The Apples exceeded our expectations."

How have Apples surpassed expectations? Read on.

NATIONAL TECHNICAL INSTITUTE FOR THE DEAF

The National Technical Institute for the Deaf (NTID) claims many firsts. It is the only technical college for deaf people in the world and it is the first large-scale effort to educate the deaf on a campus geared for hearing students. NTID also employs more Apples in more ways than any other college at Rochester Institute of Technology.

Donald H. Beil, Department Chairman of Data Processing at NTID, predicts eventually most of the 1000 students at NTID will have hands-on experience with Apple. Currently 350 students give the dozen Apples a real workout in classes in computer programming, engineering, accounting, chemistry, word processing, and medical records. Six of NTID's Apples stay in the NTID student Computer Center. Open 80 - 100 hours per week, the center has no tutors. Instead students work on class assignments and independent projects on their own.

Beil reports, "The Center receives extremely high usage; in fact, 90% of the time it's open, it's in use."

Dominic Fantauzzo, Chairman of the Electro-mechanical Department at NTID, echoes Beil on assessing the popularity of Apples at the college.

Fantauzzo uses the Apples in his department for faculty instruction and class demonstrations.

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Fantauzzo teaches a nuts-and-bolts course on computational techniques emphasizing programming and using the Apple as a problem solver. "We show what it can do and how to do it," he says.

Other classes will employ the Graphics Tablet to allow students to visualize drafting concepts. Fantauzzo plans to purchase additional Apples and to use Apple's newly released DOS Tool Kit to provide more animation for his demonstrations.

Although most Apple applications fall in the technology and science courses at NTID, Apples are also effectively used in other areas.

Dr. Walt Brown, Chairman of Visual Communications at NTID, urges his students to become computer literate. Brown notes artists today are cutting days of work to hours by making electronic modifications to designs. He predicts, "Eventually in media production you'll have to know computer programming to be employable."

Donald Sims, Research Associate and Audiologist, is developing Apple software for lip-reading lessons. In addition accounting classes at NTID solve problems with the Apple Controller Package. Beil says, "The Apple and its software has had a significant impact on our accounting education." Students in Office Practice begin their word processing with AppleWriter because it is straightforward and easy to learn.

Vice-President of Rochester Institute of Technology and Director of NTID Dr. William Castle urged NTID educators to develop computer knowledge as a goal for the 80s. Don Beil feels Apple is a sound tool to gain this knowledge. "Before we bought Apple, we surveyed the market, talked to vendors, observed other programs. We chose Apple. If we had to make the decision again, no doubt, we would still choose Apple."

COMPUTER SCIENCE AND TECHNOLOGY

Until this quarter Guy Johnson, Associate Professor of Computer Science and Technology at Rochester Institute of Technology used a Tektronix Graphic device attached to a mainframe computer to teach Interactive Computer Graphics. "But we had no color, no selective interaction, and only limited educational effect."

Since switching to Apple PASCAL, Johnson reports he teaches all the needed concepts, inexpensively and effectively. Johnson says, "The student reaction to using Apple is most favorable."

FINE AND APPLIED ARTS

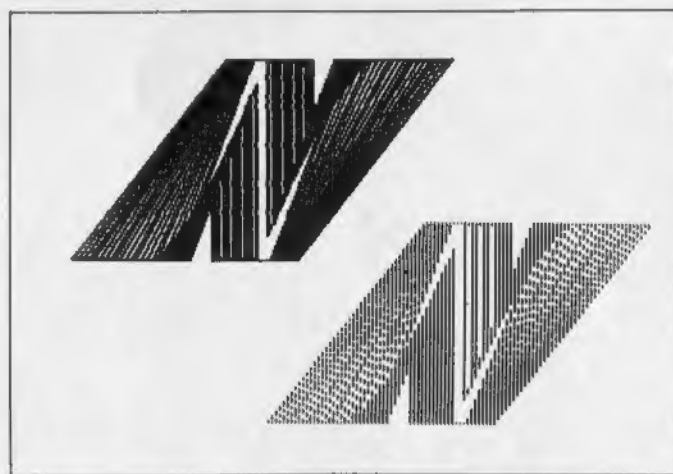
After three years of artists on Apples, Jim Ver Hague reports the Apples in his department are reliable

machines and efficient timesavers for his students. In fact by using Apples to generate letterform and symbol designs, students have originated far more designs than they could have manually.

Ver Hague teaches Computer Art and Graphic Design Concepts using the department's Apples, a Graphics Tablet, and software he developed.

He estimates 100 students have had hands-on graphic design experience on his Apples. "Actually more students want to use them than I have room for." Ver Hague notes the Apple operation was easy to learn and the students are using their Apple education in their careers.

"One of our graduates landed her first job because of her Apple knowledge."



Design variations for a decorative letterform.

PHOTOGRAPHIC SCIENCE AND INSTRUMENTATION DIVISION

John Carson uses his department's Apples both as a computational tool and as a graphics medium. Apples aid in teaching Optics, Image Formation and Analysis, Statistics, Radiometry, and Photographic Chemistry. He reports many advantages: reacting to questions in real-time, having the graphics part of lectures available on disc for review and being able to analyze data immediately.

Carson stresses the benefits of the rapid data processing and analysis.

"We are doing experiments in the lab that were not possible earlier. For instance, we take large amounts of data and using the Apples, we plot the data, make sophisticated calculations and see an immediate display of results. Previously students would have spent

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two nights obtaining these results; now they see them in ten minutes." Carson adds: "The Apple relieves you of the tedium of the process and lets you get at the meaning immediately."

GENERAL STUDIES, PSYCHOLOGY DEPARTMENT

Roger Harnish, Assistant Professor of Psychology, originally intended to use his department's Apple for record-keeping, but found it's an invaluable demonstrator for psychological phenomenon and may even prove new insights into traditional experiments.

Harnish's first goal was to control the mass of records generated by students enrolled in Introduction to Psychology.

A totally self-instructed class, the 200 students read their texts at their own pace coming to class only to take the required eight tests per quarter. Students retake the tests until they pass. With an Apple Computer System, Harnish is able to accurately assess where each student is in the course: the tests he's passed, the grade he has, the concepts he needs to review. The Apple, Harnish says, saves him hours of manual record-keeping.

Besides using the Apple to keep records, Harnish found he could demonstrate ESP and the Phi and Masking Phenomena (both show illusion of movement) on the Apple. Harnish says since the Apple can demonstrate the phenomena as well as do the statistical analysis, he is now free to better monitor the experiment and to interact with his students.

Furthermore, by using Apple Harnish eliminated the need for four pieces of equipment: the tachistoscope, phi phenomenon demonstrator, reaction timer and memory drum.



An NTID (National Technical Institute for the Deaf) student works on an integrated sequence with one of NTID's eight Apple computers.

The faculty of Rochester Institute of Technology agree that they chose Apple, the computer leader in educational instruction, because of its reliability, portability, and graphics capability.

Dominic Fantauzzo of NTID says, "Apples have exceeded our expectations." And Donald Beil, Chairperson of Data Processing at NTID adds, "Apples provide a bridge for a common technology enabling us to exchange ideas and software."

For additional information on any of the projects in this article, contact the faculty member mentioned at: Rochester Institute of Technology
One Lomb Memorial Drive
Rochester, NY 14623

THE FUTURE OF EDUCATION

The Southeastern States Council for Educational Improvement recently held their annual convention in Orlando, Florida addressing the theme of "The Future of Education." Greg Smith, Apple's Director of Education Marketing, addressed the conference on the impact of microcomputers on education. In his talk he made four significant points:

- The growth of microcomputers in schools today is phenomenal.
- The problem of the software incompatibility of the '60s and '70s with larger scale computing will be repeated with microcomputers unless action is taken.
- State education departments should create or at least support groups seeking to coordinate an orderly introduction of microcomputers in the school systems.
- Standard configurations of hardware and languages are necessary to bring about a cost effective means of control, support and resource sharing.

Apple Computer is committed to support state education departments and large computer consortiums seeking to provide effective control and support of microcomputers in education systems. Contact Apple Education Marketing Group, Cupertino, California.

APPLE INSIGHTS

In Colorado Springs, Colorado, Dick Aplin reports the development of a Student Locator program on Apple that aids school administrators, real estate sales people and families moving to new neighborhoods. The Student Locator includes a complete map of the Colorado Springs School District programmed on the Apple. A parent planning a move can phone the district office and learn immediately which school the child would go to, what the schedule would be, and what bus services would be available. "By using Apple," says Aplin, "we give immediate answers."

In addition to the Student Locator File, Aplin says that Apples installed as intelligent terminals have replaced IBM key punches for district use. "The system works very well," notes Aplin.

In DeKalb County, Georgia, Frank Barber, Coordinator of Computer Assisted Instruction, designed a fifty-hour course to teach computer literacy to teachers. Barber says, "If our kids are going to be successful with computers, the teachers must know what computers can and cannot do." }



So far forty teachers have been trained through a combination of a lecture and twenty-five hours of hands-on experience on the Apple. Currently at least one teacher from each of the thirty-four district schools is enrolled in the class. Teachers are enthusiastic about the course and bring their positive reaction back to their students. One school principal reports, "This program is the most electrifying thing to happen to this school in twenty years."

Dr. Aaron Marcus, at the University of California at Berkeley, has created an Apple-based graphic design course titled "Maps And Diagrams." As one of their assignments, students designed home energy information systems on the Apple, which would allow the consumer to investigate the rooms of his or her home to discover where energy leaks were occurring. The art students were enthusiastic about the Apple. As Dr. Marcus notes, "Learning things interactively on the Apple is one of the ways to make education exciting."

LETTERS, WE GET LETTERS

If our mail is any indication, Apple Education News sure gets around. We've received letters from all over the world asking to be put on A.E.N.'s mailing list. People have even sent us blank checks and open purchase orders to pay for subscriptions.

We really appreciate hearing from you. You are fulfilling our aim in writing the newsletter: to stop you from re-inventing the wheel and to facilitate an exchange between educators and other interested users on their Apple applications.

First, the good news—Apple Education News is free. Just tell us you want to receive it. Send subscription requests to: Apple Computer, Inc., Apple Education News, 10260 Bandle Drive, Cupertino, CA 95014.

Second, keep the word going between us and other Apple users. We try to give you a contact name with each story. Contact the people involved to find out more. Tell other educators what's going on.

And third, if you have stories for us or you want to tell us about your software (commercial or non-commercial) write to us: Apple Education News, P.O. Box 20485, San Jose, CA 95160.

APPLES IN ALASKA

FRONTIER STATE IN FOREFRONT OF COMPUTER EDUCATION

Ten years ago, our largest state, Alaska, was isolated from the "lower 48." Telephone, radio, and TV services were few. Rural villages existed as they had for generations without the benefit of modern technology. Because of limited educational opportunities, many rural students dropped out of school after the 8th grade or had to attend boarding school elsewhere.

Then in the early '70s, telecommunication satellites brought Alaska electronic contact with the outside world. It also alerted Alaskan educators to the unlimited possibilities of computer-based education.

They asked themselves: Why not use the computer to provide support for the teachers in rural schools?

Why not, indeed.

Thus, the ambitious Educational Telecommunications Project for Alaska was born—probably one of the most comprehensive computer-assisted programs in the world.

Dr. William J. Bramble of the Alaska Department of Education is the Director of Educational Telecommunications for Alaska project. Dr. Bramble describes the life of the Alaskan rural teacher as rigorous, taxing the teacher as few other teaching jobs could. "A village school may have two teachers and twenty students ranging from K-12. The teachers must provide all

instruction for the children without relying on any of the usual conveniences like a resource center, bookstore, or nearby supervisor."

Bramble says, "We had a real challenge. We met the challenge by devising a teaching strategy that used technology to provide a variety of quality education courses."

After investigating the various methods of computer-assisted education, the Alaskan educators settled on stand-alone micros because of their cost and independence. Bramble says, "We chose Apple because it's rugged and could withstand the power fluctuations that are common here. Furthermore, it had more random access memory than other micros. In addition to sound, educational programming already existed for Apple and there's potential for developing much more educational material."

Introducing microcomputers to a primitive, isolated area requires real ingenuity. Just transporting the Apples to the rural school may mean several airplane flights climaxed by a final run on skis or floats. But transportation is a minor challenge compared to teacher training.

Bramble says, "Remember, we have no nearby computer stores. Our teachers provide the routine maintenance and troubleshooting on our Apples."

To turn the teachers into Apple experts, Bramble and his staff devised a tough three-day training course given in Fairbanks, Anchorage or Juneau.

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On Day One the teachers learn how to take apart and repair their Apples. Last year 80% of supposed equipment malfunctions turned out to be easily made minor adjustments, e.g., an improperly seated board or loose connection. Therefore, the first day is comprised of learning Apple troubleshooting techniques.

Bramble says, "We end the first part of the workshop by sabotaging each teacher's Apple. It's essential they be able to repair the computer. Our training works. By the end of our three-day workshop, our teachers are able to do minor repairs."

On Days Two and Three, workshop leaders present the entire instructional process including an overview of the educational model, explanation of the teacher's role, review of materials and computer drills, and effective use of the supervisory functions of the computer programs, especially those checking the student's progress.

"We developed our own instructional programs," says Bramble, "because of our specialized needs. Our aim was to provide courses with high interest and



simple vocabulary, with content on the student's grade level."

Working with Northwest Regional Educational Laboratory, the Alaska Department of Education developed Computer Assisted Instruction (CAI) to teach Alaskan History, English, General Math, and Developmental Reading. Courses in General Science and U.S. History are under development.

Each of the four courses includes 40-60 audio visual instruction tapes, student manuals, standard textbooks, and computer software for drills and testing. Usually each course has 80-100 computer drills. Students complete tests—via their Apples—at the end of each unit. The microcomputer figures the student's score and also defines the concepts understood by the student and those concepts in need of additional review.

Bramble notes, "The system is perfect for the small school. Students receive individualized instruction and the teacher knows exactly where the student is in each course."

Currently thirty-three schools in twenty different school districts use fifty Apples. Teachers and students are enthusiastic about the microcomputers. Bramble says, "There's real competition in the classroom to get on the Apple."

For additional information contact:

Dr. William Bramble
Educational Telecommunications
for Alaska
Department of Education
Pouch F
State Office Building
Juneau, Alaska 99811



THE MINNESOTA EDUCATIONAL COMPUTING CONSORTIUM

Pioneering Statewide Use of The Apple PART II

A decade ago, Minnesota might have been known as "The Computing State," because of the large manufacturing installations and major computer manufacturers headquartered there. As the 1980s begin, the title is still appropriate. Minnesota is the nation's leader in instituting instructional computing in school and college classrooms. It is also the only state where a single organization, the Minnesota Educational Computing Consortium (MECC), coordinates all instructional computing activity from elementary school through the university level. It is the home of the world's largest general-purpose instructional timeshare system, a 420-port Control Data Corporation CYBER 73 known as the MECC Timesharing System.

Today with the age of classroom microcomputing only two years old, Minnesota again leads by acquiring nearly 2000 Apples for its school and colleges, and



by instituting a statewide contract for the APPLE II to encourage the placement of Apples in instructional settings.

Software For the Apple II

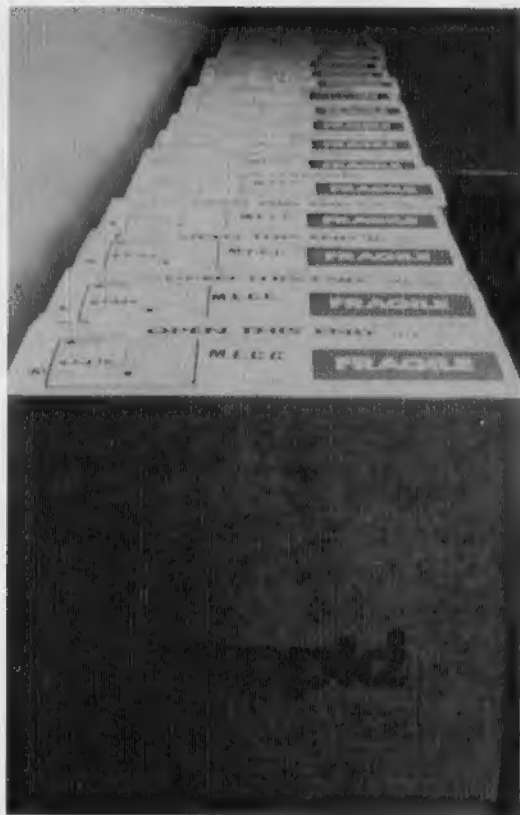
Today there are twenty-three diskettes in the MECC Apple Library, each accompanied by a documentation booklet for teachers. In the fall of 1979, MECC staff began the development of this library collection. Library diskettes were produced containing a combination of programs converted from the timeshare system and newly created programs that take advantage of Apple special features. In addition, contributed programs are solicited from users who use special MECC software to upload their creations onto the MECC Timeshare System where they become available to MECC timeshare users.

A periodic review of these "seed" programs produces additional entries for the MECC diskettes. In fact, user contributions make up the majority of the programs in the collection. The MECC staff bolstered this effort by creating *A Guide to Authoring Software for Apple II Microcomputer* (MECC Publications #505) and a Programmer's Aid diskette that gives users a headstart in authoring their own applications. The programs on the MECC diskettes are distributed both by electronically downloading from the timeshare system and by direct disk-to-disk copying. Currently Minnesota educational users can receive this software at no charge.

People Support for the Apple II

Simply placing a microcomputer into a school does not insure that it will be used effectively. To meet the needs of staff training, MECC originated a team of Instructional Coordinators. These ten teacher trainers spend each school year visiting schools, presenting workshops, teaching classes, organizing computing conferences, publishing newsletters, and responding

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to phone queries to increase the effectiveness of both timeshare and microcomputer use in Minnesota schools. Each year, over 300 school districts and 30 college campuses will be visited, and several hundred workshops and classes given. School district and college local computing coordinators take this training to provide inservice to their colleagues. The people network involved in Minnesota instructional computing is as vital to creating this successful venture as the technological network.

Administering the MECC Apple II Contract

Handling the logistics for a contract that has covered the sale of nearly 3,000 system components in less than two years takes a high degree of organization. MECC used many newsletters and workshop sessions to publicize the contract. Schools and colleges send in purchase orders to the MECC office. They are logged by an administrative assistant who places the set of orders to Apple Computer Inc. every two weeks. The contract covers the sale of an Apple II Plus with 32K memory, the Apple II Disk II Drive, the Apple Communication card and a black-and-white video monitor. The 32K Applesoft single disk configuration is the standard around which most MECC distributed software is designed.

The units are delivered to the MECC central office or one of the five regional instructional coordinator offices. The ten coordinators then personally deliver at least the first Apple for each school district using the contract. This provides the opportunity to demonstrate the Apple's set-up and operation and, in some cases, to train a group of school staff members. Users maintain their units through local computer stores or service outlets.

The 1,000th Apple

A major milestone for the contract was reached in April, 1980 when the 1000th Apple ordered was delivered to Montevideo, Minnesota. A town with about 6,000 people located in Minnesota's western agricultural region, Montevideo began using timesharing six years ago. When Apple became available on the MECC contract, the school district purchased one to supplement senior high school computer programming work and for drill and practice in the middle school. The 1000th unit was one of three recently ordered for the district's elementary schools where they will be used primarily for computer awareness units in the fourth and fifth grades.

During the past several years, the local school board has made increased computer usage one of the major goals for the school system. In support of this, the district's administration arranged for several inservice courses to be taught in Montevideo by a



nearby state university. More than 75 teachers have taken this course. The district's 1800 K-12 students come into contact with the Apples in many situations. Special math and computer science courses are now established, computer awareness units are taught, school libraries experiment with the management of their book collections by computer, and community agri-business courses introduced the computer to both students and parents. As the local *Montevideo American News* pointed out in a recent feature story on the district's computing program, "Montevideo is making strides toward familiarizing students of all ages with computers."

Into The Future

As the new decade begins, Minnesota looks forward to maintaining its leadership in instructional computing. MECC estimates that the introduction of Apple has at least doubled the number of educators now involved with instructional computing. Currently 95% of the state's elementary, secondary and college students are enrolled in a district or institution that uses the computer in instruction. The goal is to push that all the way to 100%. As computers reach into more aspects of our everyday lives, future adults of The Computer State will be ready.

To obtain MECC software or documentation contact:

MECC Publications
2520 Broadway Drive
St. Paul, MN 55113
Phone (612) 376-1118

Ask for the Publications and Program Price List and MECC Publication #999, for which there are no charges.

For information on user activity and support to schools and colleges, contact:

MECC Manager of User Services
2520 Broadway Drive
St. Paul, MN 55113
Phone (612) 376-1101

NAME THAT INTERVAL

APPLES MORE EFFECTIVE LEARNING TOOL THAN TAPES IN MUSIC EDUCATION

Dr. Don Pederson is convinced that Apple computers outperform audio tapes when it comes to training the ear to recognize musical intervals.

In the Melodic Intervals Ear Training classes in the Music Department of the University of Tennessee at Knoxville, freshman music students are assigned half-hour sessions in the Computer Lab. The number of required sessions is determined after a diagnostic exam is given at the beginning of the course.

The results show conclusively that computer drill and testing combined with lecture presentation of concepts produce very significant improvement in student scores over the traditional drill and practice on audio tapes.



The reason?

Dr. Pederson believes the Apple's immediate feedback and response plus diagnosis of errors explains the success of the program.

Pederson says most students take about 15 minutes to get acquainted with the Apple; and he finds the Apple system "extremely reliable; in fact, I can't think of three days in three years that we've been without every single one of our Apples."

Now that's music to our ears.

To learn more about this program:

Dr. Don Pederson
Music Department
University of Tennessee
Knoxville, TN

APPLE EDUCATION FOUNDATION: A FOLLOWUP ON THREE AWARDS

"ABOVE—BELOW—LEFT—RIGHT" TEACHES PRE-SCHOOLERS DIRECTIONALITY

Ann Piestrup received a Foundation grant in October 1979 to develop a program geared to the preschooler. Using eye-catching graphics, the program teaches directionality (above-below-left-right), an important skill prerequisite for both math and reading. Geared to be administered by either parents, pre-school or elementary teachers, Piestrup has just completed field testing her software at Bing Nursery School in Palo Alto, CA. In addition, Dr. Piestrup recently received a prestigious National Institute of Education—National Science Foundation (NIE—NSF) grant to continue her work in preschool microcomputer software development. "We are very pleased with our courseware development thus far. Our Apple Education Foundation Grant provided us with valuable experience in microcomputer program design; and this in turn helped us achieve the additional award."

CHEMISTRY SOFTWARE

Gordon Barrow, a professor at University of California at Santa Cruz, originally taught chemistry using traditional timesharing computer systems. However, from his experience he predicts that most chemistry departments will go to microcomputers to avoid the scheduling and reliability problems of larger computers.

Barrow says of the physical chemistry software he developed for the Foundation, "The difference between my program and elementary chemistry programs is that they require a prior knowledge of chemistry. Rather than teaching directly, they reinforce and explain previously introduced concepts." Diffusion, one of his programs, uses the Apple II to plot the probable effects of diffusion allowing students to experiment with different diffusion rates and associated physical chemistry parameters. Dr. Barrow edits "Newsletter", a quarterly bulletin, geared to people interested in computer-based studies of chemistry. To obtain a subscription write: The Milne Press, P.O. Box 1246, Carmel Valley, CA 93924.

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WORD PROCESSING SOFTWARE DEVELOPED FOR HIGH SCHOOL BUSINESS EDUCATION CLASSES

LeRoy Finkel, Business teacher at San Carlos High School, San Carlos, California noticed that his colleagues were reluctant to use microcomputers to teach business courses. Finkel proposed to attempt to change the situation by developing courseware that provided teachers and students with confidence and competence on microcomputers.

In order to teach word processing Finkel chose AppleWriter because it is "complete, priced-right and is a properly-supported system that schools should find more than adequate for all their teaching needs." However, while Finkel acknowledges the value of the available reference manual, it is not designed for classroom use. Therefore Finkel proposed to the Foundation to design a word-processing learning packet for AppleWriter aimed for the specific needs of high school business students.

The tutorial for the Word Processing packet includes step-by-step methods of text editing. The student practices on a test containing an overview of computer history and useful technical facts. Finkel calls this a "subtle computer literacy approach."

Finkel has field tested his system in three high schools and received outstanding comments from teachers and students. His Word Processing tutorial will be available through the Foundation in Spring, 1981 after it has undergone established Foundation review.

In 1981 The Apple Education Foundation anticipates the donation of approximately \$350,000 worth of hardware and peripheral equipment to awarded applicants proposing the development of quality, focused instructional software. A national non-profit corporation, The Apple Education Foundation was established in 1979 to support and develop new methods of learning through the use of microcomputers. The deadline for the next cycle of proposal applications is February 9th, 1981. Guidelines for applications for Foundation Grants are available by contacting the Administrator, 20863 Stevens Creek Boulevard, Building B-2, Suite A-1, Cupertino, CA 95014.

RESOURCE CENTER

PROJECT BASIC is a generic program designed to work with locally selected skills or objectives and tests, including district and standardized tests. A clerk or teacher aide centrally located in a school is assigned the responsibility of creating and updating student files for all teachers in the school. Through the use of a mark sense card reader, all updating is virtually automatic.

Used by more than 200 schools in the United States, the package simplifies assigning student grades, establishing student prescriptions and receiving student progress reports. Because of a hierarchical reporting scheme, reports can be generated on any level desired, all the way from individual students to district or superintendent level reports.

Project Basic was designed to help schools meet recent legislation to identify, diagnose, and monitor essential skills. The package handles many types of programs, including bilingual education, vocational education and Title I. In addition, eighteen different reports are available including: Student Prescription and Progress Reports, Objective Grouping Reports, Teacher Daily Class Reports, Student Report Cards, Class and Grade Status Reports, and School and District Status Reports.

PROJECT BASIC includes all necessary Apple equipment, a mark sense card reader, all software, and three days of in-service training. The total package cost is \$7,995.

For additional information contact:

Evans Newton Incorporated
7335 East Acoma Drive
Suite 102
Scottsdale, AZ 85260
602/998-2777

COMPUTER DISCOVERY developed by Science Research Associates introduces junior and senior high school students to basic computer concepts. The package, consisting of an Instructor's Guide, two diskettes, and Student Workbook allows substantial interaction between the student and the computer. No prior computer knowledge is needed to operate the program.

Computer Discovery focuses on four main areas of computer knowledge: history, hardware and software, analysis and programming, and the social and economic impacts of computers. The Student Workbook is available at your choice of levels: junior high school or senior high school. The Instructor's Guide also includes educational objectives on which a more advanced curriculum may be based, lists of references and resources, and project suggestions.

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10260 Bandley Drive
Cupertino, CA 95014



To use Computer Discovery, you will need a 32K Apple II Plus system with disk drive. Cost is \$125 for the two Apple diskettes and teacher's guide; \$3.25 per student workbook. A classroom set of workbooks plus the Teacher's Guide and two diskettes costs \$195. To learn more contact:

Science Research Associates
155 N. Wacker Drive
Chicago, Illinois 60606
800/621-0664

The EDUCATIONAL SOFTWARE DIRECTORY: Apple II Edition is the first comprehensive directory of the educational software available for the Apple. With over 700 separate entries representing thousands of

hours of software, this directory lists instructional packages from commercial software publishers as well as nonprofit and educational institutions.

The directory includes a short description of each piece of software, its price, and ordering information. An additional feature of the directory is its comprehensive index, which categorizes the available lessons by grade level. Cost is \$11.95 plus \$1.00 postage and handling.

Pick up the Educational Software Directory at your local Apple dealer or order from:

Sterling Swift Publishing Co.
P.O. Box 188
Manchaca, Texas
512/444-7570